



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**16.06.1999 Bulletin 1999/24**

(51) Int Cl.<sup>6</sup>: **G11C 8/00, G11C 11/406**

(43) Date of publication A2:  
**13.08.1997 Bulletin 1997/33**

(21) Application number: **97300251.2**

(22) Date of filing: **16.01.1997**

(84) Designated Contracting States:  
**DE FR GB**

- **Hazelzet, Bruce Gerard**  
**Essex Junction, Vermont 05452 (US)**
- **Kellogg, Mark William**  
**Essex Junction, Vermont 05452 (US)**

(30) Priority: **09.02.1996 US 598857**

(71) Applicant: **International Business Machines Corporation**  
**Armonk, N.Y. 10504 (US)**

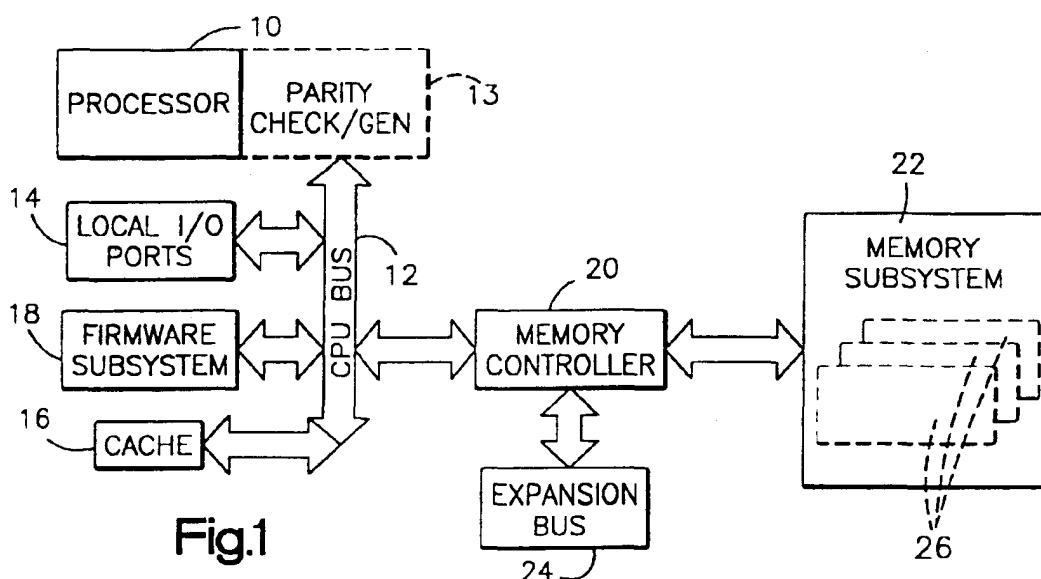
(74) Representative: **Zerbi, Guido Maria**  
**Intellectual Property Department,**  
**IBM United Kingdom Ltd.,**  
**Hursley Park**  
**Winchester, Hampshire SO21 2JN (GB)**

(72) Inventors:  
 • **Dell, Timothy Jay**  
**Colchester, Vermont 05446 (US)**

(54) **High density SIMM or DIMM with RAS address re-mapping**

(57) The signal configuration for addressable DRAMs from a system is changed from a signal that actuates a single bank of DRAMs having Y/X row/column addresses actuated by a single RAS, to a signal configuration that provides two RAS signals for two banks of

DRAMs having Y-1/X row/column addresses actuated by two RAS signals. This is done by converting the high order address bit from the system to a RAS signal actuated by a system RAS when, and only when, the high order bit is of a given value.



**Fig.1**



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 97 30 0251

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
E	US 5 600 604 A (CHEN ROGER) 4 February 1997 * the whole document * ---	1,2,5,6,9	G11C8/00 G11C11/406
X	US 5 371 866 A (CADDY JAMES W) 6 December 1994	1,5,6	
Y	* the whole document * ---	2,4,8,9	
Y	DE 43 09 363 A (MITSUBISHI ELECTRIC CORP) 14 October 1993 * figures 2A,3,6,9 * -----	2,4,8,9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G11C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		23 April 1999	Wolff, N
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  .....  &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 97 30 0251

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-04-1999

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5600604	A	04-02-1997	NONE	
-----				
US 5371866	A	06-12-1994	NONE	
-----				
DE 4309363	A	14-10-1993	JP 5282865 A	29-10-1993
			IT 1263856 B	04-09-1996
			KR 9608278 B	21-06-1996
			US 5404335 A	04-04-1995
-----				